

## Amendments to the Claims

**Claims 1-18** previously pending in the application are all **canceled herewith and replaced with new claims 19-38**, as follows:

Claims 1-18 (canceled).

1     **Claim 19 (new)** A method of creating a model of a low  
2     pressure compressor rotor for a gas turbine engine,  
3     comprising the steps of:  
4         creating a knowledge base of information having a  
5     plurality of rules with respect to a corresponding  
6     plurality of parameters of associated elements of the low  
7     pressure compressor rotor, wherein the knowledge base  
8     comprises at least one data value for each one of the  
9     plurality of rules;  
10        entering a desired data value for a selected one of  
11     the plurality of parameters of an associated element of  
12     the low pressure compressor rotor;  
13        comparing the entered desired data value for the  
14     selected one of the plurality of parameters with the  
15     corresponding at least one data value in the knowledge  
16     base for the corresponding one of the plurality of rules;  
17        if the result of the step of comparing is such that  
18     the entered desired data value for the selected one of  
19     the plurality of parameters is determined to have a first  
20     predetermined relationship with respect to the  
21     corresponding at least one data value in the knowledge  
22     base for the selected one of the plurality of rules, then  
23     creating a geometric representation of the selected one  
24     of the plurality of parameters of the associated element  
25     of the low pressure compressor rotor;

26 analyzing the created geometric representation of the  
27 selected one of the plurality of parameters of the  
28 associated element of the low pressure compressor rotor;  
29 and  
30 performing a durability analysis on the created  
31 geometric representation of the selected one of the  
32 plurality of parameters of the associated elements of the  
33 low pressure compressor rotor.

1 **Claim 20** (new) The method of claim 19, wherein the step  
2 of creating a geometric representation of the selected  
3 one of the plurality of parameters of the associated  
4 element of the low pressure compressor rotor further  
5 comprises the step of updating the model of the low  
6 pressure compressor rotor with the selected one of the  
7 plurality of parameters of the associated element of the  
8 low pressure compressor rotor.

1 **Claim 21** (new) The method of claim 19 wherein if the  
2 result of the step of comparing is such that the entered  
3 desired data value for the selected one of the plurality  
4 of parameters is determined to have a second  
5 predetermined relationship with respect to the  
6 corresponding at least one data value in the knowledge  
7 base for the selected one of the plurality of rules, then  
8 modifying the entered desired data value for the selected  
9 one of the plurality of parameters.

1 **Claim 22** (new) The method of claim 21, further comprising  
2 the steps of:

3 comparing the modified data value for the selected one  
4 of the plurality of parameters with the corresponding at

5 least one data value in the knowledge base for the  
6 corresponding one of the plurality of rules; and  
7 if the result of the step of comparing is such that  
8 the modified data value for the selected one of the  
9 plurality of parameters is determined to be of the first  
10 predetermined relationship with respect to the  
11 corresponding at least one data value in the knowledge  
12 base for the corresponding one of the plurality of rules,  
13 then creating a geometric representation of the selected  
14 one of the plurality of parameters of the associated  
15 element of the low pressure compressor rotor.

1 **Claim 23** (new) The method of claim 19, further comprising  
2 the step of storing the created knowledge base of  
3 information.

1 **Claim 24** (new) The method of claim 19 further comprising  
2 the step of displaying the create geometric  
3 representation of the selected one of the plurality of  
4 parameters of the associated element of the low pressure  
5 compressor rotor.

1 **Claim 25** (new) The method of claim 19 wherein the  
2 associated elements of the low pressure compressor rotor  
3 include a plurality of axially spaced rings, the rings  
4 including spacer means for connecting and establishing  
5 the spacing between successive rings, successive rings  
6 being connected by welds in successive spacer means, and  
7 wherein the spacer means between the successive rings  
8 include a knife edge member, the knowledge base including  
9 rules for sizing the rings and for the placement of the  
10 welds relative to the knife edge members.

1     **Claim 26** (new) The method of claim **19** wherein the step of  
2     creating the geometric representation of the selected one  
3     of the plurality of parameters of the associated element  
4     of the low pressure compressor rotor further comprises  
5     the step of creating the model of the low pressure  
6     compressor rotor.

1     **Claim 27** (new) The method of claim **19** wherein the at  
2     least one data value for some of the plurality of rules  
3     in the knowledge base comprises a numerical value.

1     **Claim 28** (new) The method of claim **19** wherein the step of  
2     entering a desired data value for a selected one of the  
3     plurality of parameters of an associated element of the  
4     low pressure compressor rotor comprises the steps of:  
5         making available at least one data value for each  
6     one of the plurality of parameters of the associated  
7     element of the low pressure compressor rotor; and  
8         selecting a desired value for the selected one of the  
9     plurality of parameters of the associated element of the  
10    low pressure compressor rotor from the at least one data  
11    value made available for each one of the plurality of  
12    parameters of the associated element of the low pressure  
13    compressor rotor.

1     **Claim 29** (new) The method of claim **28** wherein the step of  
2     making available at least one data value for each one of  
3     the plurality of parameters of the associated element of  
4     the low pressure compressor rotor comprises the step of  
5     providing a visual display containing a graphic depiction  
6     of the at least one data value for each one of the

7 plurality of parameters of the associated element of the  
8 low pressure compressor rotor.

1 **Claim 30** (new) The method of claim 19, further comprising  
2 the step of providing a file listing of a selected one or  
3 more of the plurality of parameters of the associated  
4 elements of the low pressure compressor rotor, wherein  
5 the file listing includes at least one of the entered  
6 desired data values for each one of the corresponding  
7 plurality of parameters of the low pressure compressor  
8 rotor elements.

1 **Claim 31** (new) A method of creating a model of a low  
2 pressure compressor rotor for a gas turbine engine,  
3 comprising the steps of:  
4 creating a knowledge base of information having a  
5 plurality of rules with respect to a corresponding  
6 plurality of parameters of associated elements of the low  
7 pressure compressor rotor, wherein the knowledge base  
8 comprises at least one data value for each one of the  
9 plurality of rules;

10 entering a desired data value for a selected one of  
11 the plurality of parameters of an associated element of  
12 the low pressure compressor rotor;

13 comparing the entered desired data value for the  
14 selected one of the plurality of parameters with the  
15 corresponding at least one data value in the knowledge  
16 base for the corresponding one of the plurality of rules;

17 if the result of the step of comparing is such that  
18 the entered desired data value for the selected one of  
19 the plurality of parameters is determined to have a first  
20 predetermined relationship with respect to the

21 corresponding at least one data value in the knowledge  
22 base for the selected one of the plurality of rules, then  
23 creating a geometric representation of the selected one  
24 of the plurality of parameters of the associated element  
25 of the low pressure compressor rotor; and  
26 providing a file listing of a selected one or more of  
27 the plurality of parameters of the associated elements of  
28 the low pressure compressor rotor, wherein the file  
29 listing includes at least one of the entered desired data  
30 values for each one of the corresponding plurality of  
31 parameters of the low pressure compressor rotor elements.

1 **Claim 32** (new) The method of claim 31 wherein the step of  
2 providing a file listing of a selected one or more of the  
3 plurality of parameters of the associated elements of the  
4 low pressure compressor rotor further comprises the step  
5 of providing the file listing as an output from a  
6 knowledge base engineering system.

1 **Claim 33** (new) The method of claim 32 wherein the step of  
2 providing the file listing of a selected one or more of  
3 the plurality of parameters of the associated elements of  
4 the low pressure compressor rotor as an output from a  
5 knowledge-based system further comprises the step of  
6 providing the file listing as an input file to a computer  
7 program for controlling parametric models of the design  
8 of the tooling for the manufacture of the low pressure  
9 compressor rotor.

1     **Claim 34** (new) The method of claim **31** wherein the  
2     associated elements of the low pressure compressor rotor  
3     include a plurality of axially spaced rings, the rings  
4     including spacer means for connecting and establishing  
5     the spacing between successive rings, successive rings  
6     being connected by welds in successive spacer means, and  
7     wherein the spacer means between the successive rings  
8     include a knife edge member, the knowledge base including  
9     rules for sizing the rings and for the placement of the  
10    welds relative to the knife edge members.

1     **Claim 35** (new) The method of claim **31**, wherein the step  
2     of creating a geometric representation of the selected  
3     one of the plurality of parameters of the associated  
4     element of the low pressure compressor rotor further  
5     comprises the step of updating the model of the low  
6     pressure compressor rotor with the selected one of the  
7     plurality of parameters of the associated element of the  
8     low pressure compressor rotor.

1     **Claim 36** (new) The method of claim **31** wherein if the  
2     result of the step of comparing is such that the entered  
3     desired data value for the selected one of the plurality  
4     of parameters is determined to have a second  
5     predetermined relationship with respect to the  
6     corresponding at least one data value in the knowledge  
7     base for the selected one of the plurality of rules, then  
8     modifying the entered desired data value for the selected  
9     one of the plurality of parameters.

1     **Claim 37** (new) The method of claim 36, further comprising  
2     the steps of:

3         comparing the modified data value for the selected  
4     one of the plurality of parameters with the corresponding  
5     at least one data value in the knowledge base for the  
6     corresponding one of the plurality of rules; and

7         if the result of the step of comparing is such that  
8     the modified data value for the selected one of the  
9     plurality of parameters is determined to be of the first  
10    predetermined relationship with respect to the  
11    corresponding at least one data value in the knowledge  
12    base for the corresponding one of the plurality of rules,  
13    then creating a geometric representation of the selected  
14    one of the plurality of parameters of the associated  
15    element of the low pressure compressor rotor.

1     **Claim 38** (new) A method of creating a model of a low  
2     pressure compressor rotor for a gas turbine engine,  
3     comprising the steps of:

4         creating a knowledge base of information having a  
5     plurality of rules with respect to a corresponding  
6     plurality of parameters of associated elements of the low  
7     pressure compressor rotor, the associated elements  
8     including a plurality of axially spaced rings, the rings  
9     including spacer means for connecting and establishing  
10    the spacing between successive rings, successive rings  
11    being connected by welds in successive spacer means, and  
12    wherein the spacer means between the successive rings  
13    include a knife edge member, the knowledge base including  
14    rules for sizing the rings and for the placement of the  
15    welds relative to the knife edge members, wherein the



16 knowledge base comprises at least one data value for each  
17 one of the plurality of rules;  
18 entering a desired data value for a selected one of  
19 the plurality of parameters of an associated element of  
20 the low pressure compressor rotor;  
21 comparing the entered desired data value for the  
22 selected one of the plurality of parameters with the  
23 corresponding at least one data value in the knowledge  
24 base for the corresponding one of the plurality of rules;  
25 and  
26 if the result of the step of comparing is such that  
27 the entered desired data value for the selected one of  
28 the plurality of parameters is determined to have a first  
29 predetermined relationship with respect to the  
30 corresponding at least one data value in the knowledge  
31 base for the selected one of the plurality of rules, then  
32 creating a geometric representation of the selected one  
33 of the plurality of parameters of the associated element  
34 of the low pressure compressor rotor.